

WHAT IS CLAIMED IS:

1 1. A fermentation composition for treatment of aquatic environments, the composition
2 comprising:

3 an activated organic matrix, beneficial saprophytic bacteria, beneficial hydrolytic
4 enzymes, and soluble humatic compounds.

1 2. The composition according to Claim 1 wherein the activated organic matrix is
2 comprised of one or more products selected from a group consisting of wheat, barley or rye straw,
3 ground, whole-grain barley grain and wheat bran.

1 3. The composition according to Claim 1 wherein said beneficial saprophytic bacteria
2 are composed of one or more strains selected from the group consisting of *Bacillus subtilis*, *Bacillus*
3 *licheniformis*, *Bacillus amyloliquefaciens*, *Paenibacillus polymyxa*, *Bacillus megaterium*, *Bacillus*
4 *psychrophilus*, *Bacillus globiformis*, *Bacillus psychrosaccharolyticus*, *Bacillus benzovorans*, *Bacillus*
5 *vallismortis*, *Bacillus mojavenis*, *Bacillus stearothermophilus*, and *Bacillus acidopulliticus*.

1 4. The composition according to Claim 1 wherein the organic matrix is activated by
2 fermentation in the presence of beneficial saprophytic bacteria.

1 5. The composition according to Claim 1 wherein the hydrolytic enzymes are produced
2 during the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1 6. The composition according to Claim 1 wherein the soluble humatic compounds are
2 produced by the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1 7. The composition according to Claim 1 wherein the organic matrix is comprised of
2 from 10% to 75% wheat straw and wheat bran.

1 8. The composition according to Claim 1 wherein the organic matrix is comprised of
2 from 10% to 75% other straw or grain products.

1 9. The composition according to Claim 1 wherein the organic matrix is comprised of
2 from 10% to 98% barley and/or grain.

1 10. The composition according to Claim 1 wherein the composition is a dry granulated
2 fermentation product.

1 11. A method for producing a dried granular fermentation product for the treatment of
2 aquatic environments comprising the following steps:

- 3 (a) providing an organic matrix;
- 4 (b) adding water in the amount of 35% to 60% by weight based on the weight of
5 the total composition to said organic matrix;
- 6 (c) steam pasteurizing the organic matrix;
- 7 (d) inoculating the pasteurized organic matrix with seed bacterium;

- 8 (e) incubating the organic matrix until bacterial growth occurs; and
9 (f) drying the organic matrix to immobilize the saprophytic bacteria.

1 12. A method as set forth in Claim 11 including the additional step of chopping said
2 organic matrix into pieces from about .2 cm to about 5 cm in length prior to said addition of water.

1 13. A method as set forth in Claim 11 including the additional steps of adding additional
2 nutrients to said organic matrix to accelerate growth of bacteria and adding buffering salts to the
3 organic matrix to control pH for optimum bacterial growth prior to stream pasteurization.

1 14. A method as set forth in Claim 11 including the additional step of grinding the
2 organic matrix after said drying to create a dried granular fermentation product.

1 15. A method for treating an aquatic environment comprising the steps of:
2 adding a fermentation composition of an actuated organic matrix, beneficial
3 saprophytic bacteria, beneficial hydrolytic enzymes, and soluble humatic compounds to the aquatic
4 environment in an amount sufficient to reduce growth of algae in the aquatic environment.